UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,357	06/23/2003	Ludmila Cherkasova	200311047-1	7467

22879 7590 02/25/2008

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
COULTER, KENNETH R	
ART UNIT	**PAPER NUMBER**
2141	

NOTIFICATION DATE	DELIVERY MODE
02/25/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/601,357
Filing Date: June 23, 2003
Appellant(s): CHERKASOVA, LUDMILA

Jody C. Bishop (Reg, No. 44,034)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/28/07 appealing from the Office action mailed 6/29/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appeal Brief filed for Application No. 10/601,992 on July 19, 2007.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2002/0152305	JACKSON et al.	10-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 32 – 35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 32 – 35 are directed to software that is not implemented on a computer-readable storage medium.

The following passage of the specification supports the 35 USC 101 rejection (paragraph 145, page 50):

When implemented via computer-executable instructions, various elements of embodiments of the present invention for modeling a media server's memory are in essence the software code defining the operations of such various elements. **The executable instructions or software code** may be obtained from a readable medium (e.g., a hard drive media, optical media, EPROM, EEPROM, tape media, cartridge media, flash memory, ROM, memory stick, and/or the like) **or communicated via a data signal from a communication medium** (e.g., the Internet). **In fact, readable media can include any medium that can store or transfer information.**

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 – 4, 6 – 14, 16, 18 – 21, and 23 – 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Jackson et al. (U.S. Pat. Pub. No. 2002/0152305) (Systems and Resources for Resource Utilization Analysis in Information Management Environments).

4.1 Regarding claim 1, Jackson discloses a method for managing admission of requests to a shared media server, the method comprising:

allowing each of a plurality of hosting services access to any of a set of shared resources for serving their respective streaming files to clients, wherein said set of shared resources comprises memory (Abstract; Figs. 6, 8, 9A-9D; paragraphs 292, 293 (see below)); and

managing admission of client requests for streaming files to each of the plurality of hosting services to ensure that a desired amount of usage of the shared resources is available to each hosting service (Abstract; Figs. 8, 6; paragraphs 292, 293 (see below)), wherein said managing admission of client requests for streaming files comprises:

receiving a client request for a streaming file to be served from one of said hosting services (Fig. 12; paragraph 396 (see below); paragraph 123 "dedicated block-level cache processor capable of block level cache processing ... as well as other storage networking protocols."); and

using a segment-based memory model to determine whether at least a portion of the requested streaming file is in the memory (Fig. 12; paragraph 396 (see below); paragraphs 123, 124).

paragraph 292:

The embodiment of FIG. 8 may be implemented, for example, to allow a **host service provider** ("HSP") to use the disclosed methods and systems to provide one or more differentiated business services for one or more tenants, who in turn may provide services to subscribers. Examples of HSP's include, but are not limited to, a data center owner who provides co-located or managed services to one or more tenants. Examples of tenants include, but are not limited to, xSPs (such as ISP, ASP, CDSP, SSP, CP or Portal), Enterprise providers providing service to employees, suppliers, customers, investors, etc. A tenant may be co-located or under HSP Managed Service. Subscribers include, for example, residential and/or business customers who access a network content delivery system to play audio/video streams, read web pages, access data files, etc. It will be understood that these examples are exemplary only, and that the embodiment of FIG. 8 may be implemented to allow entities other than an HSP to provide differentiated business services using the disclosed methods and systems.

paragraph 293:

Referring now to FIG. 8 in more detail, business objectives may be defined in step 1210 and may include objectives such as service definition objectives (e.g., delivery of continuous broadcast, non-continuous and/or stored information, management of unique/non-unique information, anticipated number of simultaneous subscribers and/or simultaneous streams, event (e.g., stream) duration, system resources (e.g. bandwidth) per subscriber, etc.), service differentiation objectives (e.g., horizontal and/or vertical differentiation between different entities, differentiation based on quality/**cost** plan, differentiation based on type of information request, differentiation based on user/subscriber and/or user/subscriber

characteristics, etc.), service level agreement objectives (e.g., CoS priority, QoS etc.), service metering objectives and/or service monitoring objectives (e.g., subscriber flow performance, tenant class performance or individual tenant performance, aggregate system performance, individual subsystem performance, etc.), service reporting objectives (e.g., billing log generation, tracking adherence to SLA, tracking utilization of system and/or subsystems, tracking subscriber and/or content activity, etc.), information processing management objectives (e.g., admission and/or prioritization of requests based on tenant class or individual tenant identity, overflow treatment, etc.), and/or service classes (e.g., desired number and/or types of service classes, etc.). Such objectives may be defined in any manner suitable for communicating the same, for example, from a system purchaser/user to an information management system supplier. Types of objectives that may be defined include one or more pre-defined types of variables, and/or may include one or more custom objective aspects.

paragraph 396:

The embodiment of FIG. 12 may be implemented so that the characteristics of the buffer/cache and/or ***logical volume management algorithms*** of at least one of the multiple second processing engines 2120 differs from the characteristics of the buffer/cache and/or ***logical volume management algorithms*** of at least one of the other second processing engines 2120, but is at the same time assigned or otherwise designated to be application specific or file system specific to at least one of the respective applications 2102 and/or file systems 2104 residing on multiple first processing engines 2100. Such a configuration may be implemented, for example, to **allow a particular first processing engine 2100 that is executing a given application 2102 to *retrieve information/data (e.g., content)* from a particular storage device/content source** 2130 using a selected second processing engine 2120 having a buffer/cache algorithm 2124 optimized for the particular access pattern of the given application 2102 running on the particular first processing engine 2120, and/or having a given ***logical volume management algorithm 2124*** that is optimized for the given file system 2104 residing on the particular first processing engine 2120.

4.2 Per claim 2, Jackson teaches the method of claim 1 further comprising: implementing the plurality of hosting services on a shared media server (paragraphs 195, 197 (see below)).

paragraph 195:

Similarly, the function of network storage management engine 1040 is performed by storage subsystem module 210 in conjunction with file system cache subsystem module 215. Communication and content delivery between content sources 265 and storage subsystem module 210 are shown made directly through content delivery flowpath 263 through fibre channel interface connection 212. **Shared resources subsystem module 255 is shown provided for access by each of the other subsystem modules and may include, for example, additional processing resources**, additional memory resources such as RAM, etc.

paragraph 197:

Also illustrated in FIG. 2 are optional monitoring agents 245 and resources 250. In the embodiment of FIG. 2, each monitoring agent 245 may be provided to monitor the resources 250 of its respective processing subsystem module, and may track utilization of these resources both within the overall system 200 and within its respective processing subsystem module. Examples of resources that may be so monitored and tracked include, but are not limited to, processing engine bandwidth, Fibre Channel bandwidth, number of available drives, IOPS (input/output operations per second) per drive and RAID (redundant array of inexpensive discs) levels of storage devices, memory available for caching blocks of data, table lookup engine bandwidth, availability of RAM for connection control structures and outbound network bandwidth availability, shared resources (such as RAM) used by streaming application on a per-stream basis as well as for use with connection control structures and buffers, bandwidth

available for message passing between subsystems, bandwidth available for passing data between the various subsystems, etc.

4.3 Regarding claim 3, Jackson discloses the method of claim 1 wherein the set of shared resources comprises: shared memory resources and shared disk resources (paragraphs 195, 197 (see above)).

4.4 Per claim 4, Jackson teaches the method of claim 1 further comprising: determining the desired amount of usage of the shared resources for a hosting service from a service level agreement (Fig. 8; paragraphs 13, 16, 235, 269).

4.5 Per claim 6, Jackson teaches the method of claim 5 further comprising: determining from the segment-based memory model a cost associated with the one of said hosting services serving the requested streaming file (paragraph 125 "weighs ongoing viewer cache value versus the dynamic time-size **cost** of maintaining particular content in cache memory"; paragraph 293 "service differentiation objectives (e.g., horizontal and/or vertical differentiation between different entities, differentiation based on quality/**cost** plan, ..." (see paragraph 293 above); paragraphs 123, 124).

4.6 Regarding claim 7, Jackson discloses the method of claim 1 wherein said managing admission of client requests for streaming files comprises: receiving a new request for service of a streaming file by one of the plurality of hosting services;

performing a resource availability check for the one of a plurality of hosting services to determine whether the requested hosting service has sufficient available resource usage allocated thereto to service the new request (paragraphs 292, 293 (see above)).

4.7 Per claim 8, Jackson teaches the method of claim 7 wherein said managing admission of client requests for streaming files further comprises: performing a performance isolation guarantee check for the plurality of hosting services to determine whether acceptance of the new request will violate, **at any point in the future**, availability of a desired amount of usage of the shared resources for any of the plurality of hosting services (paragraph 240 (see below) "**a request for content may be so rejected when the identified required resources of the present system are** not immediately available **or will not be available within a specified period of time**."; paragraph 9 "**predictability**"; paragraph 10 "capacity **planning**"; paragraph 30 (see below) "capacity **planning**" "**predict** future loads"; paragraphs 127, 216, 219, 269).

paragraph 240:

Another exemplary policy that may be implemented to address situations in which the current system is unable to process a request for content is illustrated at step 160 where the request for content may be rejected. Similar to step 155, **a request for content may be so rejected when the identified required resources of the present system are** not immediately available **or will not be available within a specified period of time**. Such a policy may be implemented, for example, where no other separate clustered system is known to be capable of handling the request, and/or is known to have the necessary resources immediately available or available within a specified period of time. In addition to rejecting the

request for content, step 155 may also include notifying the source of the request for content of the rejection and of the inability of the present system to process the request for content. Once the request for content has been rejected at step 160, method 100 returns to step 105 where a subsequent request for content is awaited.

paragraph 30:

In one respect, disclosed herein is a logging and analysis manager that may be implemented in one embodiment as a **capacity planning analyzer tool ("CPAT")** that is capable of analyzing resource information or data logged by a resource utilization logger over a course of time (e.g., historical system resource performance data). The CPAT may be advantageously configured to be accessed and operated by a user (e.g., administrator) for capacity planning purposes via an interface or other format that is easily operable by the user. Capabilities of a CPAT may be particularly advantageous for users operating a system that is running out of capacity. In such a case, a user may employ the CPAT to analyze logged data to help determine current load and/or to **predict future loads and future load patterns**. It may also be used to predict long term growth patterns (e.g., for future capacity planning purposes), and/or to predict suitable maintenance scheduling windows.

4.8 Regarding claim 9, Jackson discloses the method of claim 1 further comprising: specifying, for each of the plurality of hosting services, a desired amount of usage of the shared resources to be available at any given time for the hosting service (Abstract; Fig. 8; paragraphs 292, 293 (see above)).

4.9 Per claim 10, Jackson teaches the method of claim 9 wherein said managing

admission of client requests comprises: managing admission of client requests for streaming files to each of the plurality of hosting services to ensure that each of the plurality of hosting services has usage of its corresponding specified desired amount of the shared resources (Abstract; Fig. 8; paragraphs 292, 293 (see above)).

4.10 Regarding claims 11 – 14, 16, 18 – 21, and 23 – 39, the rejection of claims 1 – 4 and 6 – 10 under 35 USC 102(e) (paragraphs 4.1 – 4.11 above) applies fully.

(10) Response to Argument

5. Applicant's arguments filed 9/28/07 (as part of the Appeal Brief) have been fully considered but they are not persuasive.

Independent Claim 1 and Dependent Claims 2 – 4, 7, 9, and 10:

Regarding claim 1, Applicant argues that Jackson fails to teach "a segment-based memory model to determine whether at least a portion of the requested streaming file is in the memory of a shared media server.

Examiner disagrees.

As seen below in paragraph 396, Jackson teaches using a segment-based memory model to determine whether at least a portion of the requested streaming file is in the memory ("allow a particular first processing engine 2100 ... to **retrieve**

information/data (e.g., content) from a particular storage device/content source 2130 ... having a given **logical volume management algorithm**" (paragraph 396)).

paragraph 396:

The embodiment of FIG. 12 may be implemented so that the characteristics of the buffer/cache and/or ***logical volume management algorithms*** of at least one of the multiple second processing engines 2120 differs from the characteristics of the buffer/cache and/or ***logical volume management algorithms*** of at least one of the other second processing engines 2120, but is at the same time assigned or otherwise designated to be application specific or file system specific to at least one of the respective applications 2102 and/or file systems 2104 residing on multiple first processing engines 2100. Such a configuration may be implemented, for example, to **allow a particular first processing engine 2100 that is executing a given application 2102 to *retrieve information/data (e.g., content)* from a particular storage device/content source** 2130 using a selected second processing engine 2120 having a buffer/cache algorithm 2124 optimized for the particular access pattern of the given application 2102 running on the particular first processing engine 2120, and/or having a given ***logical volume management algorithm 2124*** that is optimized for the given file system 2104 residing on the particular first processing engine 2120.

Regarding claims 2 – 4, 7, 9, and 10, no additional arguments were presented by Applicant.

Dependent Claim 6:

Regarding claim 6, Applicant argues that Jackson fails to "determining from the segment-based memory model a cost associated with the one of said hosting services serving the requested streaming file."

Examiner disagrees.

Jackson discloses determining from the segment-based memory model a **cost** associated with the one of said hosting services serving the requested streaming file (paragraph 125 "weighs ongoing viewer cache value versus the dynamic time-size **cost of maintaining particular content in cache memory**" (see below); paragraph 293 "service differentiation objectives (e.g., horizontal and/or vertical differentiation between different entities, differentiation based on quality/**cost** plan, ...)" (see above); paragraphs 123, 124).

paragraph 125:

For increasing delivery efficiency of continuous content, such as streaming multimedia content, storage management engine 1040 may employ caching algorithms that consider the dynamic characteristics of continuous content. Suitable examples include, but are not limited to, interval caching algorithms. In one embodiment, **improved caching performance of continuous content may be achieved using an LMLRU caching algorithm that weighs ongoing viewer cache value versus the dynamic time-size cost of maintaining particular content in cache memory.** Such a caching algorithm is described in further detail in U.S. patent application No. 09/797,201, filed Mar. 1, 2001 and entitled "Systems and Methods for Management of Memory in Information Delivery Environments" by Qiu et. al, the disclosure of which is incorporated herein by reference.

Dependent Claim 8:

Regarding claim 8, Applicant states that Jackson fails "to teach performing such a performance isolation guarantee check to determine whether acceptance of a new request will violate at any point in the future availability of the shared resources." Examiner disagrees.

Jackson discloses performing such a performance isolation guarantee check to determine whether acceptance of a new request will violate at any point in the future availability of the shared resources (paragraph 240 (see below) "**a request for content may be so rejected when the identified required resources of the present system are** not immediately available **or will not be available within a specified period of time**."; paragraph 9 "**predictability**"; paragraph 10 "capacity **planning**"; paragraph 30 "capacity **planning**" "**predict** future loads"; paragraphs 127, 216, 219, 269).

paragraph 240:

Another exemplary policy that may be implemented to address situations in which the current system is unable to process a request for content is illustrated at step 160 where the request for content may be rejected. Similar to step 155, **a request for content may be so rejected when the identified required resources of the present system are** not immediately available **or will not be available within a specified period of time**. Such a policy may be implemented, for example, where no other separate clustered system is known to be capable of handling the request, and/or is known to have the necessary resources immediately available or available within a specified period of time. In addition to rejecting the request for content, step 155 may also include notifying the source of the request for content of the rejection and of the inability of the present system to process the request for content. Once the request

for content has been rejected at step 160, method 100 returns to step 105 where a subsequent request for content is awaited.

Independent Claim 11 and Dependent claims 12, 13, and 16:

Regarding claim 11, Applicant states that Jackson "fails to teach an admission controller that is operable to determine whether acceptance of a new request will violate, at any point in the future, availability of a desired amount of usage of the shared resources for any of the plurality of hosting services."

Examiner disagrees.

See the arguments regarding claim 8 above.

Regarding claims 12, 13, and 16, no additional arguments were presented by Applicant.

Dependent claim 14:

Regarding claim 14, Applicant states that "Jackson fails to teach a segment-based memory model."

Examiner disagrees.

See the arguments regarding claim 1 above.

Independent Claim 18 and Dependent Claims 19 – 21:

Regarding claim 18, Applicant argues that "Jackson fails to teach determining whether acceptance of a new request for service by a hosting service will violate, at any point in the future, availability of a specified amount of usage of the shared resources for any of the plurality of hosting services."

Examiner disagrees.

See the arguments regarding claim 8 above.

Regarding claims 19 – 21, no additional arguments were presented by Applicant.

Independent Claim 23 and Dependent Claims 24 – 26:

Regarding claim 23, Applicant states that Jackson "fails to teach determining a cost to a hosting service for serving a requested streaming file based at least in part on such a modeled memory state."

Examiner disagrees.

See the arguments regarding claim 6 above.

Regarding claims 24 – 26, no additional arguments were presented by Applicant.

Dependent Claim 27:

Regarding claim 27, Applicant states that "Jackson fails to teach making such a determination of whether acceptance of a new request will violate availability of a desired amount of usage of shared resources at any point in the future."

Examiner disagrees.

See the arguments regarding claim 8 above.

Dependent Claim 39:

Regarding claim 39, Applicant states that "Jackson fails to teach any such segment-based model of memory."

Examiner disagrees.

See the arguments regarding claim 1 above.

Independent Claim 28 and Dependent Claim 29:

Regarding claim 28, Applicant states that "Jackson fails to teach a segment-based model of memory."

Examiner disagrees.

See the arguments regarding claim 1 above.

Regarding claim 29, no additional arguments were presented by Applicant.

Dependent Claim 30:

Regarding claim 30, Applicant states that "Jackson fails to teach making such a determination of whether acceptance of a new request will violate availability of a desired amount of usage of shared resources at any point in the future."

Examiner disagrees.

See the arguments regarding claim 8 above.

Dependent Claim 31:

Regarding claim 31, Applicant states that "Jackson fails to teach a segment-based model of memory."

Examiner disagrees.

See the arguments regarding claim 1 above.

Independent Claim 32 and Dependent Claim 35:

Regarding claim 32, Applicant states that "Jackson fails to teach a segment-based model of memory."

Examiner disagrees.

See the arguments regarding claim 1 above.

Regarding claim 35, no additional arguments were presented by Applicant.

Dependent Claim 33:

Regarding claim 33, Applicant states that "Jackson fails to teach making such a determination of whether acceptance of a new request will violate availability of a desired amount of usage of shared resources at any point in the future."

Examiner disagrees.

See the arguments regarding claim 8 above.

Dependent Claim 34:

Regarding claim 34, Applicant states that "Jackson fails to teach a segment-based model of memory."

Examiner disagrees.

See the arguments regarding claim 1 above.

Independent Claim 36 and Dependent Claims 37 and 38:

Regarding claim 36, Applicant states that "Jackson fails to teach determining whether acceptance of a new request will violate, at any point in the future, availability of a desired amount of usage of the shared resources for any of the plurality of hosting services."

See the arguments regarding claim 8 above.

Regarding claims 37 and 38, no additional arguments were presented by Applicant.

(11) Related Proceeding(s) Appendix

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Kenneth R. Coulter

KENNETH R. COULTER
PRIMARY EXAMINER

Conferees:

Robert Harrell

ROBERT B. HARRELL
PRIMARY EXAMINER

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER

Rupal Dharia